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# Link Budget with Variable Transmitter Extinction Ratio

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# Link Budgets with variable Tx extinction ratio - Motivation

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- Objective: Reduce the cost of parallel optics
- Issue:  
Maintaining a high extinction ratio on a VCSEL at high speed over temp and voltage is difficult.
  - Use very uniform and temperature stable arrays  
or
  - Use feedback circuitry

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# Assumptions

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- Receivers detect data on basis of signal swing
- To maintain a link budget ==>

Manage signal swing instead of average power.

- -12 dBm ==> 0.125 mW signal swing at infinite extinction ratio
- -18 dBm ==> 0.031 mW signal swing at infinite extinction ratio

# Minimum Launch Average Power for 6 dB Link Budget w/ variable extinction ratio

